

AMENDMENTS TO THE CLAIMS

The claims in this listing will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) An objective optical system configured to be implemented in a tip of an endoscope, the system comprising:

a first lens unit having a first lens barrel and a first optical system including a plurality of lens elements assembled in said first lens barrel and aligned in a direction of a first common optical axis; and

a second lens unit having a second lens barrel, engageable with said first lens barrel, and a second optical system including a plurality of lens elements aligned in a direction of a second common optical axis,

wherein, when the first lens barrel is engaged with the second lens barrel, the lens elements of the first and second lens barrels are aligned along a common axis, the first common axis and the second common axis comprising the common axis

wherein said first lens unit includes an alignment lens movable in a direction perpendicular to an optical axis thereof, said first lens barrel being formed with a plurality of holes through which parts of a circumferential surface of said alignment lens are exposed, said alignment lens is movably accommodated in said first lens barrel, and said alignment lens is moved by pins inserted through said plurality of holes, respectively.

2. (Previously Presented) The objective optical system according to claim 1, wherein said first lens unit is provided with a fixing unit that fixes said first optical system to said first lens barrel, said second lens barrel being assembled to said first lens barrel, said fixing unit being interposed between said first lens barrel and said second lens barrel to define a clearance therebetween.

3-5 (Canceled)

6. (Currently Amended) The objective optical system according to claim 3 1, wherein said alignment lens is more sensitive to an alignment error than all of the plurality of lens elements included in said first optical system.

7. (Currently Amended) The objective optical system according to claim 3 1, wherein said alignment lens is more sensitive to an alignment error than all of the lens elements included in said objective optical system.

8. (Original) The objective optical system according to claim 7, wherein said alignment lens is a cemented lens.

9. (Original) The objective optical system according to claim 1, wherein said first lens barrel is attached to said second lens barrel by a screw connection.

10. (Currently Amended) A method of assembling an objective optical system that is configured to be implemented in a tip of an endoscope, the method comprising:

forming a first optical system by assembling a first plurality of lenses in a first lens barrel such that the first plurality of lenses are aligned in a direction of a first common optical axis, the first lens barrel being formed with a plurality of holes on a circumferential surface thereof, the plurality of holes allowing access to a predetermined one of the first plurality of lenses in the first lens barrel and through which parts of a circumferential surface of the predetermined one of the first plurality of lens are exposed;

forming a second optical system by assembling a second plurality of lenses in a second lens barrel which is to be coupled to the first lens barrel such that the second plurality of lenses are aligned in a direction of a second common optical axis;

inserting rods through the plurality of holes to move the predetermined one of the first plurality of lenses in the first lens barrel to adjust an alignment thereof in a direction perpendicular to an optical axis thereof;

fixing the predetermined one of the first plurality of lenses to the first lens barrel;
and

coupling the first lens barrel and the second lens barrel such that the first optical system and the second optical system have a common optical axis, and the first plurality of lenses and the second plurality of lenses are aligned along the common optical axis

11. (Previously Presented) The objective optical system according to claim 1, wherein a threaded portion is provided on an inner surface of the first lens barrel which engages with a screw provided on an outer surface of the second lens barrel.